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The Gambling Behavior of Indigenous Australians

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Abstract The gambling activities of minority groups such as Indigenous peoples are usually culturally complex and poorly understood. To redress the scarcity of information and contribute to a better understanding of gambling by Indigenous people, this paper presents quantitative evidence gathered at three Australian Indigenous festivals, online and in several Indigenous communities. With support from Indigenous communities, the study collected and analyzed surveys from 1,259 self-selected Indigenous adults. Approximately 33 % of respondents gambled on card games while 80 % gambled on commercial gambling forms in the previous year. Gambling participation and involvement are high, particularly on electronic gaming machines (EGMs), the favorite and most regular form of gambling. Men are significantly more likely to participate in gambling and to gamble more frequently on EGMs, horse/dog races, sports betting and instant scratch tickets. This elevated participation and frequency of gambling on continuous forms would appear to heighten gambling risks for Indigenous men. This is particularly the case for younger Indigenous men, who are more likely than their older counterparts to gamble on EGMs, table games and poker. While distinct differences between the gambling behaviors of our Indigenous sample and non-Indigenous Australians are apparent, Australian Indigenous behavior appears similar to that of some Indigenous and First Nations populations in other countries. Although this study represents the largest survey of Indigenous Australian gambling ever conducted in New South Wales and Queensland, further research is needed to extend our knowledge of Indigenous gambling and to limit the risks from gambling for Indigenous peoples.

Keywords Gambling · Gambling participation · Indigenous Australian · Aboriginal

Being aware of debate over titles used to describe Aboriginal and Torres Strait Islander Australians, the term Indigenous Australians has been used to include all Aboriginal and Torres Strait Islander peoples unless otherwise quoted.

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Introduction

Indigenous Australians have participated in gambling for over 300 years with Macassan traders introducing card gambling in pockets of the north (Breen 2008). Today, although card games are reducing in popularity, they remain a widespread acceptable form of social recreation in some Indigenous communities; further the expansion of commercial forms of gambling, such as EGMS, casinos and off-course wagering, has extended Indigenous gambling participation (Breen 2010; McDonald and Wombo 2006; McMillen and Donnelly 2008).

Scant empirically derived knowledge exists regarding most aspects of contemporary Indigenous gambling, either on cards or commercial gambling. The international knowledge base is meager, providing little insight into Indigenous gambling as a socio-cultural activity, thus limiting prior theoretical developments in gambling to culturally narrow perspectives. There is an urgent need to build the knowledge base about contemporary Indigenous gambling activities, Indigenous community values and beliefs around gambling, how Indigenous gambling problems are perceived, Indigenous help-seeking behavior, and culturally-sensitive resources for problem gamblers (Wardman et al. 2001; Wynne 2011).

This paper contributes to addressing some gaps in knowledge regarding contemporary Indigenous gambling. It reports selected outcomes of a broader empirical study examining gambling amongst Indigenous Australian people in a range of different locations mainly throughout New South Wales (NSW) and Queensland (QLD). The paper aims to describe the gambling behaviors of these Indigenous Australians and to analyze and compare aspects of their gambling behavior by selected socio-demographic characteristics. The study is pioneering in that it represents the largest survey specific to Indigenous gambling ever conducted in NSW and QLD and the first since 1996.

Background

At the last Australian census, 548,370 Indigenous people accounted for approximately 2.5 % of Australia's population (Australian Bureau of Statistics [ABS] 2010, 2012). Indigenous Australians are a relatively young population, with a median age of 21 years compared to 37 years for the non-Indigenous population reflecting higher fertility rates and lower life expectancy (ABS 2010, 2012). Indigenous family units are typically larger with more dependent children (ABS 2006). Over one-quarter (27 %) live in remote or very remote parts of Australia, compared with 2 % of non-Indigenous Australians, while around 30 % of Indigenous people live in Australian cities (ABS 2012, 2006).

Indigenous people face structural disadvantage in Australian society, leading to a greater burden of ill-health, disability and reduced quality of life and a high incidence of social problems (Australian Council of Social Services [ACOSS] 2010; Holland 2011). Those reporting their health as 'fair or poor' is nearly double the rate of non-Indigenous Australians (ABS 2006). Indigenous people are more likely than non-Indigenous people to live below the poverty line, be unemployed, and be less educated (ACOSS 2010).

In terms of public health risks, Indigenous and non-Indigenous Australian adults report similar rates for drinking alcohol at risky levels while 50 % of Indigenous adults are daily smokers, about twice the rate of non-Indigenous adults (ABS 2006). Some studies have suggested that Indigenous Australians are more at risk of developing problem gambling (e.g. Dickerson et al. 1996; QLD Department of Corrective Services 2005; Stevens and Young 2009a, b), which has been defined as behavior 'characterised by difficulties in

limiting money and/or time spent on gambling which leads to adverse consequences for the gambler, others, or for the community' (Neal et al. 2005:1).

Gambling Among Indigenous Peoples

Most gambling studies examine the gambling activities of the general population or dominant cultural group, with few focusing on sub-cultural groups (Wynne and McCready 2004). However, some New Zealand and North American studies have examined gambling amongst First Nations and Aboriginal peoples.

In New Zealand, representative surveys have found that, while Maori and Pacific Islanders are less likely to gamble than the general New Zealand population (Gray 2011; Ministry of Health 2009), Māori participate in more types of gambling than do Pacific people and the general New Zealand population (Gray 2011). Māori are more likely to buy lottery and instant scratch tickets more frequently, play EGMs in pubs and clubs weekly, and buy raffle tickets or attend casino fundraising evenings than other groups in New Zealand (Gray 2011). Indeed, Māori and Pacific people are twice as likely to be at least weekly gamblers on continuous forms (Gray 2011) and over four times more likely to be problem gamblers than the general population (Ministry of Health 2009).

Some qualitative studies help to explain these differences. Interviews with 131 people from four major ethnic groups living in New Zealand (Maori, Pacific Island, Asian, European) (Tse et al. 2012) found that environmental and ethno-cultural influences to gamble include: attractive gambling prizes, gambling advertising targeting specific ethnic groups, gambling forms that cater for different skill levels, 24/7 access to gambling, living in poverty, stressful urban life, learned intergenerational gambling patterns, and family and peer encouragement to gamble. From focus groups with 194 Māori groups throughout New Zealand, Wātene et al. (2007) reported gambling being perceived as tied to Māori culture, as a form of *koha* or reciprocity to support cultural infrastructure and activities. However, Māori with higher gambling participation reported significantly worse physical and mental health, self-esteem and overall life satisfaction (Wātene et al. 2007).

In North America, groups of First Nations people have historically gambled for religious, ceremonial, social, education, diplomatic and economic reasons (Belanger 2011). They gambled on archery, lacrosse and hundreds of dice games. In fact, gambling was used as a means of peacefully resolving conflicts by the Mohawks of Kahnawa'ke and is the foundation of their Great Law of Peace (Lazarus et al. 2011). More recently, some First Nations people have established casinos on their land to help fund their future, achieve self-determination and strengthen independence (Belanger 2006). Thus, gambling has a fundamental role in many First Nations societies.

In North America, the contemporary gambling participation rate for Aboriginal adults is significantly higher than for the general adult population (Williams et al. 2011). High gambling participation rates have been found in surveys of 65 Aboriginal people in Alberta (Smith and Wynne 2002) and of 500 Aboriginal people living inside and outside Alberta reservation communities (Auger and Hewitt 2000). Secondary data indicate that Cree adults gamble proportionally less than the Québec population, yet about 9 % have or are at risk of a gambling problem, compared to 2 % of the Québec population (Chevalier 2008). Shedding light on overall gambling frequency, Oakes et al. (2004) interviewed 192 Aboriginal adults in 12 Treaty #3 communities in Ontario, with about 75 % reporting they gamble at least a few times a month.

Williams et al. (2011) report that participation in different forms of gambling varies significantly between Aboriginal and non-Aboriginal gamblers in North America, citing

differences for instant-win scratch tickets (52.9 % cf 7.0 %), EGMs (40 % cf 27.2 %), bingo (23.2 % cf 7.6 %) and casino table games (13.2 % cf 9.1 %). Similarly, Smith et al. (2011) found high participation rates in many forms of gambling amongst a sample of 50 Cree people in two Alberta communities. Williams et al. (2011) also report that Aboriginal gamblers engage in more gambling forms (2.9) compared to non-Aboriginal (2.4) gamblers in North America.

Growing evidence suggests that a higher proportion of Aboriginal than non-Aboriginal people experience problems from 'high-stakes' gambling (Belanger 2006; Williams et al. 2011), and are about 2–3 times more likely to become problem gamblers (Belanger 2006; Williams et al. 2011). In the United States, re-analysis of a nationally representative survey of 43,093 adults (Alegría et al. 2009) found nearly double the prevalence of disordered gambling amongst Native Americans compared to the national population. The authors suggested their results reflect cultural differences in gambling, its acceptability and accessibility. If Dyall's (2010) claim is accurate that Indigenous people in nations with a history of British colonization are more susceptible to gambling problems, then this higher risk may also be faced by Indigenous Australians.

Gambling Among Indigenous Australians

Research has provided some insights into the gambling behavior of contemporary Indigenous Australians. Some studies have exclusively examined Indigenous peoples (e.g., Altman 1985; Christie and Greatorex 2009; Goodale 1987; Hunter and Spargo 1988; Phillips 2003), while others have used broad population samples in which Indigenous subpopulations have been deliberately or coincidentally captured (e.g. Dickerson et al. 1996; QLD Department of Corrective Services 2006; Young et al. 2006).

Qualitative studies in remote Indigenous communities in Western Australia (WA), Queensland (QLD) and the Northern Territory (NT) have found card gambling to be a prominent activity with a focus on socialization (Hunter and Spargo 1988; Martin 1993; Phillips 2003), leisure (Altman 1985), and a way to reduce boredom and escape daily pressures (Phillips 2003). However, recent studies have found more negative impacts. For example, card gambling in three remote Indigenous communities in north QLD is associated with high rates of moderate risk gambling (QLD Department of Corrective Services 2005). From interviews with representatives from 64 health, welfare, social support and government agencies in four NT towns, McDonald and Wombo (2006) reported that card gambling has altered from its socially redistributive function, with winnings now leaked from the community of origin. Some gamblers reportedly believe they can win more from EGMs than cards, leading to increased engagement in commercial gambling. Similarly, Breen et al. (2011) in qualitative interviews with 169 Indigenous Australians in north-eastern NSW, found that involvement in commercial gambling has accompanied a decline in collective aspects of card gambling in urban areas and increasingly individual motivations for commercial gambling participation.

A consultative study with 98 people throughout NSW (Aboriginal Health and Medical Research Council of New South Wales [AHMRC] 2007:34) reported gambling as historically a "very common and widely accepted activity" in many Indigenous communities, a part of life and a pleasurable leisure and recreation activity. Women reportedly prefer gaming machines, bingo and cards while men are more likely to bet on horse racing. Gambling is considered a consistent source of problems (financial losses, child neglect, family disagreements, legal troubles) for some Indigenous communities (AHMRC 2007); however Indigenous gamblers were not interviewed for this study.

Four quantitative studies have contributed knowledge on Indigenous Australian gambling. The largest in NSW captured a convenience sample of 222 Indigenous Australians in two cities and three rural areas (Dickerson et al. 1996). Over 85 % of the sample had gambled in the past year, with about 50 % gambling weekly. These weekly Indigenous gamblers indicated higher endorsement of gambling motivations (enjoyment, pleasure and involvement) than the weekly non-Indigenous gamblers in the study. Gambling on horse and dog races and EGMs was very popular. The weekly median spend was AU$221 for men and AU$124 for women in rural areas, and AU$111 for men and AU $91 for women in urban areas. The average session spend amongst regular gamblers was similar for both Indigenous and non-Indigenous study participants, but because the Indigenous gamblers reported more frequent sessions and used more gambling types, their weekly expenditure was significantly higher. While most Indigenous gamblers (85 %) reported positive experiences with gambling, being a hobby, an interest and for relaxation, problem gambling was estimated at around 11 % of the people surveyed. Gambling frequency and participation were significantly higher amongst the Indigenous than non-Indigenous gamblers.

The Australian Institute for Gambling Research and the Labour and Industry Research Unit (AIGR/LIRU) (1996) surveyed a non-random snowball sample of 128 Indigenous regular gamblers in licensed venues in Cairns, north QLD. The research revealed their preferences were EGMs (78 %), Lotto/lottery (11 %), horse and dog racing (7 %), and cards and bingo (4 %). Men and women preferred EGMs equally. The average gambling expenditure was about AU$60 per week, of which about AU$30 was spent on EGMs. While the survey was limited to gamblers in venues, a high percentage of income (20 %) was spent on gambling. Further, before EGMs were introduced in the early 1990s, 29 % of the sample had never gambled (AIGR/LIRU 1996).

Two related quantitative studies investigated relationships between reported gambling problems and negative life events among Australian and NT residents. Stevens and Young (2009a, b) analysed ABS data and responses to one question from the Negative Life Events Scale (NLS) that asked whether the respondent, their family or close friends had experienced gambling problems over the previous 12 months. Important variations between Indigenous and non-Indigenous Australians experiencing gambling-related problems were associated with multi-family households, income levels, social connectedness, and community problems including violence. Gambling problems for Indigenous people were reported to average 13.5 %, about six times higher than national rates for the general population (Productivity Commission 1999).

Despite the useful contribution made by these previous studies, many have been plagued by methodological limitations, especially their small non-representative samples. Further, few have garnered Indigenous community support. This paper reports on a study which carefully adhered to Indigenous ethical research principles, generating widespread support from community leaders and residents, thus enabling a survey of several large groups of Indigenous Australians in QLD and NSW.

Methods

Research Design

Research involving Indigenous people needs to be approached from culturally safe and respectful positions (Atkinson 2002; Martin 2008; Rigney 1997). While one of our research team is an Indigenous Australian, all team members were extremely mindful of

these requirements and of the central importance of gaining trust and maintaining integrity. As such, guidance was sought from several guidelines for ethical research (AIATSIS 2012; NHMRC 2003, 2007). Being crucial that all human and Indigenous ethical research protocols were met, this project was submitted to and approved by the AHMRC of NSW (760/10) and by a university Human Research Ethics Committee (ECN-10-178).

The study involved six stages. Consultative meetings were first held with key individuals and groups in the study communities, including Aboriginal Land Councils, community controlled Aboriginal health and employment services, Aboriginal tertiary education administrators, Aboriginal event organizers, government departments with Aboriginal portfolios, local Elders and local Indigenous community members. Second, intellectual property and methodology issues were negotiated with the AHMRC of NSW. Third, significant effort was made to engage with Aboriginal communities. To generate community awareness and support for the study, several articles about gambling awareness and the need for research were published in local community newspapers, included in event publicity, posted online and distributed as posters in Aboriginal communities. Fourth, local Indigenous research assistants were recruited and trained for survey administration, before conducting a gambling survey of Indigenous adults at events, in communities and online. The final stage involved data analysis and feedback through the AHMRC of NSW.

Measures

Given the study's aim was to measure various aspects of Indigenous Australians' gambling behavior, quantitative methods were deemed most suitable. The survey instrument was based on questions from five previous surveys (Productivity Commission 1999; QLD Department of Corrective Services 2005; QLD Government 2008; and surveys in two QLD Indigenous communities that remain confidential). Community consultation led to adaptation of some questions. The same survey was then used in all situations.

The survey contained an information sheet followed by questions about the respondent's gambling relating to the following:

- participation, frequency, duration and expenditure on card gambling;
- frequency of gambling on 10 forms of legal commercial gambling;
- duration, venue and expenditure for their most frequent commercial gambling activity;
- reasons for gambling;
- consequences of gambling;
- help-seeking for gambling-related problems;
- erroneous beliefs about gambling;
- demographic characteristics including Aboriginality, age, gender, marital status, employment status and source of income;
- the Problem Gambling Severity Index (PGSI) (Ferris and Wynne 2001). The PGSI contains nine items scored as "never" = 0, "sometimes" = 1, "most of the time" = 2 and "almost always" = 3. Scores are summed for a total between 0–27, with respondents classified as 0 = non-problem gambler; 1–2 = low risk gambler; 3–7 = moderate risk gambler, and 8+ = problem gambler.

Only some aspects of the data collected are reported in this paper.

Procedure

The survey was administered at three Aboriginal cultural and sports festivals, online and in a variety of Aboriginal communities during 2011. The first event was an Aboriginal

cultural festival, the one-day Saltwater Freshwater Festival (SW/FW) held in January in Port Macquarie NSW. Most of the estimated 5,000 attendees were Aboriginal and 276 completed surveys were collected.

The second event was the four-day NSW Aboriginal Rugby League Knockout in Bathurst in October. About 10,000 Aboriginal people were estimated to attend this well-known event that has operated for 41 years. The event draws people from across NSW, QLD and other states and is attended by generations of Aboriginal families who often treat it as an annual gathering of relatives and friends. From this festival 499 surveys were collected.

The third event was the three-day First Contact Sports and Cultural Festival in Brisbane QLD in November. This festival has been running for 18 years and attracts touch football teams, supporters, cultural performers and art groups from all over QLD, NSW and other states. From an estimated 3,000–5,000 people at this event, 353 surveys were collected.

Additionally, the survey was placed online from March to November 2011 with links placed on Indigenous health, education, employment, responsible gambling and gambling help websites. We also ran Facebook advertisements for 1 month. Seventy-nine surveys were completed online.

From contacts of the research team, over 65 Aboriginal people, generally community leaders or representatives of key community organisations, were telephoned between March to November 2011. They were asked to publicise the survey in their communities. With their approval, each person was sent a set of posters, surveys and pre-paid return envelopes. From this effort, 66 completed surveys were returned.

To facilitate survey administration, 33 Indigenous residents from the event locations were recruited, trained and paid as university employees. These research assistants were trained in data collection, record-keeping, assisting respondents who requested help, safety and security, survey confidentiality and anonymity. They were provided with uniforms, equipment, refreshments and at the end, a certificate of thanks. Pairs of research assistants approached festival attendees and, after explaining the aims of the research, asked them to complete the gambling survey. If people agreed, they were given a self-sealing envelope for their completed survey which was then placed in a secure box. Thus, participation was voluntary and anonymous, as was the online survey. As noted above, Aboriginal community representatives also distributed surveys to their contacts. These surveys were posted to the research team in pre-paid sealed envelopes.

Several $200 shopping vouchers were offered as random draw prizes for completing the gambling survey, one at each event and one every 2 months for new online and community survey participants. In total, 1,273 completed surveys were collected. Eight respondents indicated they were under 18 years of age and a further six did not indicate their age. These 14 surveys were excluded from further analysis. Thus, the following analyses are drawn from 1,259 respondents. Table 1 shows the survey numbers collected from each research site.

Analysis

Data were analysed using SPSS v20 on an Apple Intel MacBook Pro. Analyses were conducted using an alpha of 0.05 (unless stated otherwise). Independent samples *t* tests, ANOVA with post hoc pairwise comparisons using the Tukey HSD procedure and χ^2 were used. Effect sizes for significant results are reported throughout.

All demographic comparisons were conducted using the univariate ANOVA procedure with Tukey HSD pairwise comparisons or χ^2 test of independence. Follow up comparisons

Table 1 Source of respondents (N = 1,264)

Location	Number	Valid (%)
Bathurst knockout	499	39.6
Brisbane	342	27.2
SW/FW festival	276	21.9
Online	79	6.3
NSW communities	63	5.0
Total	1,259	100

for the χ^2 procedure were conducted using standardized residuals, where a value of ± 2 indicates a significant difference. Given the dearth of previous research on Indigenous Australian gambling, this study was considered exploratory so no hypotheses were formulated or tested.

Participants

Most respondents (92.2 %) indicated they were of Aboriginal origin, with 3.8 % identifying as Torres Strait Islanders and 4.0 % indicating both. Females comprised 58.4 % of the sample, compared to 50.2 % Indigenous females from census data (ABS 2006), χ^2 (1, $N = 1{,}176$) = 31.51, $p < 0.001$, $\Phi = 0.16$. The 35–64 year old age group was slightly overrepresented, while those under 34 and older than 65 were slightly underrepresented compared to ABS figures (2006), χ^2 (10, $N = 1{,}109$) = 57.0, $p < 0.001$, $\Phi = 0.23$. The age bracket of 18–19 years was excluded from this analysis, because the number of respondents in this bracket Australia-wide was not directly available from the ABS. There were no significant differences between the genders in terms of age-group breakdown, χ^2 (11, $N = 1{,}168$) = 17.71, $p = 0.09$, $\Phi = 0.12$. The most frequent marital status was never married (42.9 %), followed by married (24.3 %) and living with partner (23.4 %). Most of the sample (62.6 %) indicated that work is their primary source of income, while 30.1 % rely solely on a pension. Demographic information is presented in Table 2.

The results below should be interpreted with the following caveats in mind. First, the sample was a convenience, non-random sample. Second, the sample who attended the events and responded to the survey, as well as those who responded online and to the mail-out survey, may be skewed in some way and not be representative of Indigenous Australian adults. Third, lower overall educational levels of Indigenous Australians (ACOSS 2010) and the fact that English may not be their first language raise the prospect that some respondents may not have accurately comprehended all survey questions. Some inconsistencies in the data, identified below, may reflect this issue. While the research assistants offered to assist survey participants by reading the survey to them if needed, varying literacy levels may have also deterred some people from participating in the survey. Thus, the sample may also be skewed towards those with higher English literacy.

Results

Of the 1,256 respondents who gave information about their gambling participation, 248 (19.7 %) indicated they did not take part in any of the 11 forms. Thus, 80.3 % of

Table 2 Demographic characteristics of respondents

	Valid %		Valid %
Gender	($N = 1{,}176$)	Sources of income	($N = 1{,}186$)
Male	41.6	Full-time work	48.6
Female	58.4	Part-time/casual work	16.7
Age	($N = 1{,}192$)	Self-employed	2.3
18–19	7	Sick or disability pension	8
20–24	13.7	Single parent allowance	8.1
25–29	12.4	Age pension	3.4
30–34	10.7	Unemployment benefits	14.2
35–39	14.2	Other income	4.1
40–44	11.8	Income categories	($N = 1{,}178$)
45–49	11.2	Worker only	62.6
50–54	7	Pensioner only	30.1
55–59	6.1	Work and pension	3.2
60–64	4.1	Other	4.1
65–69	1	Marital status	($N = 1{,}182$)
≥70	0.8	Married	24.3
		Living with partner	23.4
		Single	42.9
		Separated/divorced	7.4
		Widowed	2.1

Note that multiple responses were allowed for the sources of income question

participants had gambled in the previous 12 months. On average, respondents participated in 3.47 (SD = 2.93) of the 11 gambling forms covered by the survey.

There were some inconsistencies in the data for gambling activities. Respondents were asked whether they participated in 11 different forms of gambling. If they indicated that they engaged in a particular form, they were then asked how often they did so. Those who indicated that they did not use a particular form within the last 12 months were asked to skip the frequency question. In approximately 10 % of cases, respondents did not answer the first question, but did respond with a frequency of engagement for one or more of the gambling forms. In these cases, the respondent was considered to engage in forms of gambling with a recorded frequency and not to engage in forms of gambling without a recorded frequency. In approximately 3 % of cases (the percentage varies depending on the form), there was conflicting information between the two questions, such as a respondent indicating they engage in a form of gambling, but then indicating that they never take part in that form of gambling. In these cases, the frequency of gambling question was taken to be correct. Thus, the final figure for how many participants engage in each form of gambling may be slightly inflated.

Card Games

Approximately one-third (33.1 %) of respondents gambled on card games within the previous 12 months. Amongst these card gamblers, 40.3 % reported doing so only a few times per year, whereas 36.3 % indicated gambling on card games at least weekly and

44.1 % at least fortnightly. Of the 387 card gamblers who answered the question, 46.3 % indicated that they gamble on cards in their local area, while a further 46.5 % indicated that they gamble on cards both in local and non-local areas. More than one-half of the card gamblers (55.3 %) usually gamble for less than 3 h on these card games, while 7.0 % of respondents indicated card gambling sessions of eight or more hours. Most card gamblers (62.8 %) spend less than $50 per fortnight on card games, while 21.4 % spend more than $100 and 4.8 % spend more than $500. A small percentage of card gamblers (12.4 %) indicated that they gamble with things other than money, such as cigarettes (11.2 %), alcohol (10.9 %), food (4.8 %), other possessions (5.8 %) and for favours (5.2 %). Card gamblers were also asked about the size of the pot for last card game they played in their local area. This was an open-response question and four responses of $20,000 or more were treated as questionable and removed. The average winning pot size was $467.21 (SD = $1,085.72, $N = 270$). Table 3 has full details on card game gambling.

Commercial Gambling

The most common commercial forms of gambling in which respondents engaged during the previous 12 months were EGMs (67.3 % of respondents), Keno (47.3 %), scratch tickets (42.8 %), lotteries (40.8 %) and horse and dog racing (37.2 %). Table 4 has these details.

For most gambling forms, between 20 and 40 % engage on a weekly basis, while between 30 and 60 % who participate in each form of gambling only engage a few times a year. Combined with high participation rates, a substantial proportion of the whole sample are regular (at least weekly) gamblers on the different gambling forms (Table 5).

Table 3 Gambling on card games

	Valid %		Valid %
Do you gamble on card games?	($N = 1,249$)	Length of gambling session	($N = 398$)
Yes	33.1	Less than an hour	16.1
No	66.9	1–2 h	22.9
Location of gambling	($N = 387$)	2–3 h	16.3
Local only	46.3	3–4 h	18.1
Non-local only	7.2	4–8 h	10.3
Both local and non-local	46.5	8–12 h	9.3
Frequency of card games	($N = 397$)	12–24 h	4.3
Nearly every day	9.8	More than 24 h	2.8
A few days per week	12.1	Fortnightly spend on cards	($N = 392$)
Once a week	14.4	$1–$10	21.4
Once a fortnight	7.8	$11–$20	19.4
Once a month	15.6	$21–$50	21.9
A few times per year	40.3	$51–$100	15.8
Do you gamble with more than money	($N = 310$)	$101–$200	6.4
Food	4.8	$201–$300	6.1
Alcohol	10.9	$301–$500	4.1
Cigarettes	11.2	More than $500	4.8
Other possessions	5.8		
For favours	5.2		

Table 4 Percentage of respondents who engage in each form of gambling activity (total $N = 1,244$)

Gambling activity	Valid percent	*N*
Card games	33.1	414
EGMs	67.3	837
Keno	47.3	588
Horse and dog racing	37.2	463
Sports betting	23.5	292
Bingo	24.2	301
Instant scratchies	42.8	533
Lotto/lottery-type games	40.8	508
Table games in a casino	12.2	152
Casino games on the Internet for money	8.8	109
Poker tournaments in hotel, club or casino	13.2	163

Table 5 Frequency of engagement in each form of gambling

Gambling form	Valid *N*	Frequency of gambling (% of those who engage in the activity)						At least weekly gamblers within whole sample
		Nearly every day	A few days per week	Once a week	Once a fortnight	Once a month	A few times per year	
Card games	397	9.8	12.1	14.4	7.8	15.6	40.3	11.4
EGMs	826	6.9	14.6	18.6	13.7	18.4	27.7	26.3
Keno	578	5.0	13.0	15.2	9.5	19.0	38.2	15.2
Horse and dog racing	453	9.5	16.6	14.8	7.7	14.6	36.9	14.7
Sports betting	285	9.1	13.3	21.4	7.0	12.3	36.8	9.9
Bingo	296	3.0	9.5	19.6	8.4	15.9	43.6	7.5
Instant scratchies	518	4.2	9.3	10.6	9.3	16.4	50.2	9.9
Lotto/lottery-type games	494	2.2	7.7	17.0	11.3	15.2	46.6	10.6
Table games in a casino	147	6.8	10.2	8.8	2.7	13.6	57.8	3.0
Casino games on the Internet	107	10.3	18.7	13.1	4.7	14.0	39.3	3.6
Poker tournaments	160	8.8	18.8	14.4	3.8	12.5	41.9	5.3

Favourite Commercial Gambling Forms

When the gamblers in the sample were asked which type of commercial gambling they had gambled most money on, 58.3 % said EGMs, 12.2 % said horse and dog racing, 9.9 % said lotto or lottery-type games and 6.5 % said Keno. All other forms were under 5 %. Most commercial gamblers (55.8 %) engage in their favourite gambling activity in a club, 19.2 % in a hotel and 12.8 % at a newsagent, with all other forms under 4 % of gamblers. Approximately two-thirds (66.8 %) of commercial gamblers spend two hours or less on their favourite type of gambling per gambling session, compared to 11.7 % of commercial gamblers who spend four or more hours per session. Approximately one-third (33.1 %)

spend under $20 per gambling session on their favourite gambling form, 75.0 % spend under $100 and 15.1 % spend more than $200.

Gender Comparisons

Males ($M = 4.0$, SD = 3.18) reported participating in significantly more forms of gambling compared to females ($M = 3.07$, SD = 2.67), $F(1, 1172) = 29.79$, $p < 0.001$, $\eta^2 = 0.01$.

A significantly higher proportion of males gamble on card games (χ^2 (1, $N = 1{,}168$) = 15.09, $p < 0.001$, $\Phi = 0.11$), Keno (χ^2 (1, $N = 1{,}167$) = 7.83, $p < 0.01$, $\Phi = 0.08$), horse and dog racing (χ^2 (1, $N = 1{,}166$) = 95.20, $p < 0.001$, $\Phi = 0.29$), sports betting (χ^2 (1, $N = 1{,}167$) = 69.16, $p < 0.001$, $\Phi = 0.24$), table games (χ^2 (1, $N = 1{,}167$) = 44.19, $p < 0.001$, $\Phi = 0.20$), online casino games (χ^2 (1, $N = 1{,}167$) = 15.69, $p < 0.001$, $\Phi = 0.12$) and poker tournaments (χ^2 (1, $N = 1{,}167$) = 26.03, $p < 0.001$, $\Phi = 0.15$). In contrast, a higher proportion of females engage in bingo compared to males, χ^2 (1, $N = 1{,}167$) = 22.27, $p < 0.001$, $\Phi = 0.14$.

For those who participate in each form, gender differences were observed in gambling frequency for EGMs (χ^2 (5, $N = 773$) = 19.29, $p = 0.002$, $\Phi = 0.16$), betting on horse/dog racing (χ^2 (5, $N = 427$) = 45.03, $p < 0.001$, $\Phi = 0.33$), sports betting (χ^2 (5, $N = 265$) = 18.12, $p = 0.003$, $\Phi = 0.26$) and instant scratchies (χ^2 (5, $N = 484$) = 12.42, $p = 0.029$, $\Phi = 0.16$). Standardized residuals indicate that males gamble more frequently than females on all of these forms.

In terms of card games, gender differences were observed in terms of where the games are played (χ^2 (2, $N = 358$) = 9.85, $p = 0.007$, $\Phi = 0.17$), with standardized residuals indicating that a higher proportion of females (11.2 %) play exclusively outside of their local area, compared to 3.4 % of males. A significantly higher proportion of males (15.5 %) indicated that they had gambled on cards with alcohol, compared to 4.3 % of females (χ^2 (1, $N = 287$) = 9.94, $p = 0.002$, $\Phi = 0.19$). No other significant differences between the genders were observed for card games. Table 6 has further details.

Age Comparisons

For age comparisons, there were 21 respondents in the 65–69 and 70+ categories, so these were merged with the 60-64 age bracket to prevent statistical issues.

Standardised residuals suggest that EGM gamblers (χ^2 (9, $N = 1{,}183$) = 19.39, $p = 0.022$, $\Phi = 0.13$), table game gamblers (χ^2 (9, $N = 1{,}183$) = 20.70, $p = 0.014$, $\Phi = 0.13$) and poker players (χ^2 (9, $N = 1{,}183$) = 24.72, $p = 0.003$, $\Phi = 0.15$) tend to be younger, while lotto/lottery gamblers tend to be older, (χ^2 (9, $N = 1{,}183$) = 44.55, $p < 0.001$, $\Phi = 0.19$). There are no significant differences between age brackets for the number of gambling forms engaged in.

In terms of gambling with things other than money, older gamblers tend to gamble more with cigarettes than younger gamblers (χ^2 (9, $N = 288$) = 19.15, $p = 0.024$, $\Phi = 0.26$), but not with other non-money items. No significant difference was observed for the location of gambling.

Marital Status Comparisons

Only 2.1 % of respondents indicated that they were widowed, so for the following comparisons, they were merged with the 7.4 % of respondents in the separated/divorced category.

Table 6 Percentage of respondents who engage in each form of gambling activity by gender (total $N = 1{,}167$)

Gambling activity	Males (%)	Females (%)
Card games	38.8	28.0***
EGMs	69.5	65.5
Keno	51.4	43.2**
Horse and dog racing	53.7	25.7***
Sports betting	35.2	14.4***
Bingo	16.8	28.7***
Instant scratchies	41.4	43.7
Lotto/lottery-type games	43.4	38.7
Table games in a casino	19.7	6.8***
Casino games on the Internet for money	12.5	5.9***
Poker tournaments in hotel, club or casino	18.6	8.5***

* <0.05, ** <0.01, *** <0.001

A significantly higher proportion of those living with their partner (74.1 %) play EGMs, compared to 67.7 % of single respondents, 61.3 % of separated/divorced/widowed respondents and 59.4 % of those who are married (χ^2 (3, $N = 1{,}173$) = 15.27, $p = 0.002$, $\Phi = 0.11$). A significantly higher proportion of married (41.8 %) and cohabitating (41.2 %) respondents bet on racing compared to 36.9 % of separated/divorced/widowed and 31.7 % of single respondents (χ^2 (3, $N = 1{,}172$) = 11.09, $p = 0.011$, $\Phi = 0.10$). Significantly fewer single respondents (34.3 %) bet on lotto/lottery compared to other marital statuses (ranging from 43.4 % to 46.3 %) (χ^2 (3, $N = 1{,}173$) = 14.45, $p = 0.002$, $\Phi = 0.11$). No other significant differences were observed in terms of types of gambling or the number of gambling behaviors engaged in. No other significant differences were observed between marital status groups in terms of gambling behavior.

Discussion

This paper reveals some distinctive features of contemporary Indigenous Australian gambling, as discussed below in relation to previous research and to future research needs.

Card gambling is a distinctive feature of many Indigenous Australians' lives, either through direct participation, as spectators or through hearing about card gambling sessions (Breen 2010; Breen et al. 2010). In this research, card gambling was confirmed as a popular activity (Christie and Greatorex 2009; Phillips 2003) that is directly engaged in by about one-third (33.1 %) of our respondents. However, most card gamblers in our study (55.9 %) play card games only once a month or less frequently, spend less than three hours at each session (55.3 %) and spend less than AU$50 per fortnight (62.7 %). These low frequency card gamblers appear similar to Breen's (2010) social card gambler profile, developed from qualitative research in north QLD. Social card players gamble using low stakes in leisurely games within their family and community, often sharing news, seeking views and discussing community matters. From Canadian research with Cree people, Smith et al. (2011) found that playing cards for money with friends is viewed as the least problematic form of gambling. Because most card gamblers in our study appear to limit and maintain control of

their card gambling, further exploration is required to better understand the processes and practices that regulate and sustain social, low stakes, community card gambling.

In contrast, more than one-third of card gamblers in our study gamble on cards at least weekly, with some gambling for 8 h or more per session and some spending $200 or more per fortnight. This more serious intensive type of card gambling has been documented by others (e.g., Goodale 1987; Hunter and Spargo 1988; Martin 1993; Phillips 2003; Young et al. 2006) and described by Berndt and Berndt (1946:248) as 'insidious' because players become so immersed in cards that they exclude other activities. Breen (2010) called intensive card gamblers, committed gamblers who play with high stakes, in long intensive games with high levels of involvement. Additional research with these more intensive card gamblers could investigate risk factors for heavy card gambling, the harms that might arise and public health measures that can prevent and minimise these harms.

Commercial forms of gambling are also popular amongst our survey participants, with about four-fifths engaging in commercial gambling in the previous year. Similar participation rates are reported for North American Aboriginal people (Williams et al. 2011) and in early NSW Indigenous research (Dickerson et al. 1996), and are higher than for the general Australian population (Productivity Commission 2010) and for Māori and Pacific Islander people in New Zealand (Gray 2011). The number of gambling activities engaged in is also high amongst our sample, compared to other Aboriginal and First Nations groups (Gray 2011; Williams et al. 2011). Although not comparable with nationally representative samples, commercial gambling participation and involvement are in the higher range for our sample.

This distinctive feature of high commercial gambling participation amongst our sample is reflected in the high participation rate on many individual forms of commercial gambling. The most popular gambling forms reported are EGMs and Keno, followed by instant scratch tickets, lotteries, and horse and dog racing. Thus, EGM gambling dominates the gambling activities of our sample, as it does for the broader Australian population (Productivity Commission 2010). In fact, over one-half of gamblers in our study reported spending the most money on EGMs, compared to other forms of gambling. This preference for EGMs is consistent with previous surveys of Indigenous Australians (AIGR/LIRU 1996; Dickerson et al. 1996) and similar to participation rates found amongst Cree people in Alberta (Smith et al. 2011). The participation rate for EGMs amongst our Indigenous sample is over twice that of the general Australian adult population (Productivity Commission 2010) and raises research questions as to why EGMs have such broad appeal amongst Indigenous Australians.

Regular gambling is also common amongst the gamblers in our sample. Around two-fifths of those who engage in EGM gambling, sports betting, online casino games for money, poker tournaments and wagering on races do so at least a weekly. These frequency rates appear high; for example, the Productivity Commission (2010) estimated that about one-quarter of Australian adults who play EGMs do so at least weekly. However, some similarities appear between our sample and New Zealand research findings where Māori are three times more likely, and Pacific Islanders are twice as likely to gamble on EGMs at least weekly compared to the general population (Gray 2011).

Combined with the finding that a higher proportion of our Indigenous sample participate in EGM gambling, this elevated rate of regular gambling means that over one-quarter of our sample are regular EGM players, compared to about 4 % for the general Australian adult population (Productivity Commission 2010). The next most regular gambling activities amongst our sample are keno, wagering on races, lotto/lottery-type games and sports betting. For people who play only lottery-type games weekly, gambling risks are

low. However gambling risks rise sharply with the frequency of gambling on table games, wagering and EGMs (Productivity Commission 2010). Regular gamblers usually play at higher intensities and for longer sessions than irregular gamblers and are about 30 % more likely to experience control problems, with this likelihood even higher for regular EGM players (Productivity Commission 2010). Thus, the high proportion of our sample who gamble at least weekly on EGMs and other continuous gambling forms is indicative of potentially higher gambling risks, a finding inviting further comparative research with Aboriginal populations across the world and research that investigates the underlying causes and consequences of such regular gambling amongst substantial proportions of these populations. The quite large minorities in our sample who typically gamble for four or more hours per session and who spend over $200 per gambling session on their favourite gambling activity, suggest that raising Indigenous community awareness about risky gambling behaviors may be warranted.

Comparisons of our respondents' gambling behavior by demographic characteristics revealed that men and women are equally likely to participate in EGM gambling, a finding consistent with results for the general population in QLD (DEEDI 2010) but not in NSW where males are overrepresented amongst EGM participants (Neilson 2007). Some prior Australian research has reported that Indigenous women are more likely to gamble on EGMs (AHMRC 2007; Breen et al. 2010; Foote 1996; McDonald and Wombo 2006), while others have found about equal participation by both sexes (AIGR/LIRU 1996; Cultural Perspectives 2005; Dickerson et al. 1996). In our sample, men and women are also equally likely to buy lotto/lottery and instant scratch tickets, which is consistent with the general NSW population (Neilson 2007) but not the QLD population where women are overrepresented (DEEDI 2010).

However, analysis of our sample shows some gender differences, where Indigenous women are more likely to participate in and play bingo more often, whereas men are more likely to participate in many continuous forms of gambling, including card games, keno, betting on horse/dog races, sports betting, casino table games, online casino gambling and poker tournaments. Men also gamble significantly more frequently than women on EGMs, horse/dog races, sports betting and instant scratch cards. This elevated participation and frequency of gambling on continuous forms by Indigenous men would appear to elevate gambling risks for them. This is particularly the case for younger Indigenous men in our sample, who were more likely than their older counterparts to participate in EGMs, table games and playing poker. Numerous Australian and New Zealand studies, as reviewed by Delfabbro (2009), have found that young people and young males report preferences for casino games, keno, sports betting and racing, whereas older people and women report favoring lotteries, bingo, and instant lotteries. Thus, young men are considered an at-risk group in the general population (Delfabbro 2009), and our results suggest this is also the case for young Indigenous men. An obvious research need is to measure the prevalence of gambling problems amongst Indigenous Australians and associated risk factors, and these will be reported for the current sample in a separate paper.

Conclusion

This exploratory study addresses a long-standing gap in the literature by reporting on the first large scale survey of gambling by Indigenous Australians in NSW and QLD. Although not based on a representative sample, the study contributes to building a picture of who gambles, how often and on which activities. Some distinctive aspects of Indigenous

Australian gambling include the popularity of card gambling, high participation and involvement in commercial gambling, and much larger proportions of the Indigenous population who gamble regularly on EGMs and other continuous forms of gambling than are found in the general population. While distinct differences between the gambling behaviors of Indigenous and non-Indigenous Australians are apparent, Indigenous gambling behavior appears to be similar in Australia to that of some Indigenous and First Nations populations in other countries.

Further research is needed to gain a better understanding of Indigenous gambling behavior, problem gambling and its contributors and consequences. Subsequent papers based on our sample will illuminate some of these aspects amongst Indigenous Australians, but a follow-up qualitative study would also be valuable to better illuminate why certain aspects of gambling behavior appear to differ so much between Indigenous and non-Indigenous Australians. Much work remains to broaden our knowledge on this topic and to limit the risks from gambling for Indigenous peoples.

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References

Aboriginal Health and Medical Research Council of NSW (AHMRC). (2007). *Pressing problems: Gambling issues and responses for NSW Aboriginal communities*. Sydney: Author.

Alegría, A., Petry, N., Hasin, D., Liu, S.-M., Grant, B., & Blanco, C. (2009). Disordered gambling among racial and ethnic groups in the US: Results from the national epidemiologic survey on alcohol and related conditions. *CNS Spectrums, 14*(3), 132–142.

Altman, J. (1985). Gambling as a mode of redistributing and accumulating cash among Aborigines: A case study from Arnhem Land. In G. Caldwell, B. Haig, D. Sylvan, & L. Sylvan (Eds.), *Gambling in Australia* (pp. 50–67). Sydney: Croom Helm.

Atkinson, J. (2002). *Trauma trails recreating songlines: The transgenerational effects of trauma in Indigenous Australia*. Melbourne: Spinifex Press.

Auger, D., & Hewitt, D. (2000). *Dream chaser: Alberta Aboriginal adult gambling prevalence study*. Edmonton, AB: Nechi Training, Research & Health Promotions Institute.

Australian Bureau of Statistics (ABS). (2006). *National Aboriginal and Torres Strait Islander health survey 2004-05*. Canberra: Author.

Australian Bureau of Statistics (ABS). (2010). *Population by age and sex: Australian states and territories, 2010: Catalogue 3201.0*. Canberra: Author.

Australian Bureau of Statistics (ABS). (2012). *Census of population and housing: Counts of Aboriginal and Torres Strait Islander Australians, 2011: catalogue 2075.0*. Canberra: Author.

Australian Council of Social Services (ACOSS). (2010). *Poverty report, October 2010*. Sydney: Author.

Australian Institute for Gambling Research and Labour and Industry Research Unit. (AIGR/LIRU) (1996). *Long term study into the impact of gaming machines in Queensland: An issues paper. The economic and social impact of gaming machines on Aboriginal and Torres Strait Islander communities in Queensland.* Brisbane: QLD Department of Families, Youth and Community Care.

Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS). (2012). *Guidelines for ethical research in Australian Indigenous studies*. Canberra: Author.

Belanger, Y. (2006). *Gambling with the future: The evolution of Aboriginal gaming*. Saskatoon, SK: Purich.

Belanger, Y. (2011). First Nations gaming and urban Aboriginal peoples in Alberta: Does and economic "fit" exist? In Y. Belanger (Ed.), *First Nations gambling in Canada: Current trends and issues* (pp. 140–164). Winnipeg, MB: University of Manitoba Press.

Berndt, R., & Berndt, C. (1946). Card games among the Aborigines of Northern Territory. *Oceania, 17*(3), 248–269.

Breen, H. (2008). Visitors to northern Australia: Debating the history of Indigenous gambling. *International Gambling Studies, 8*, 137–150.

Breen, H. (2010). *Risk factors and protective factors associated with Indigenous gambling in North Queensland*. Unpublished PhD thesis. Lismore: Southern Cross University.

Breen, H., Hing, N., & Gordon, A. (2010). *Exploring Indigenous gambling: Understanding Indigenous gambling behaviour, consequences, risk factors and potential interventions*. Melbourne: Gambling Research Australia.

Breen, H., Hing, N., & Gordon, A. (2011). Indigenous gambling motivations, behaviour and consequences in Northern New South Wales, Australia. *International Journal of Mental Health and Addiction, 9*(6), 723–739.

Chevalier, S. (2008). *Gambling*. In M. Anctil, & S. Chevalier (Eds.), *Lifestyles related to alcohol consumption, drugs and gambling: Cree health survey 2003, Cycle 2.1*. Québec: Institut national de santé publique du Québec and the Cree Board of Health and Social Services of James Bay.

Christie, M., & Greatorex, J. (2009). *Workshop report, regulated gambling and problem gambling Among Aborigines from remote Northern Territory communities: A Yolgnu case study*. Darwin: Charles Darwin University.

Cultural Perspectives Pty. Ltd. (2005). *Problem gambling research report for Indigenous communities*. Melbourne: Victorian Department of Justice.

Delfabbro, P. (2009). *Australasian gambling review* (4th ed.). Adelaide: Independent Gambling Authority of South Australia.

Department of Employment, Economic Development and Innovation. (DEEDI). (2010). *Queensland household gambling survey 2008–09*. Brisbane: QLD Government.

Dickerson, M., Allcock, C., Blaszczynski, A., Nicholls, B., Williams, J., & Maddern, R. (1996). *A preliminary exploration of the positive and negative impacts of gambling and wagering on Aboriginal People in NSW*. Sydney: Australian Institute for Gambling Research.

Dyall, L. (2010). Gambling: A poison chalice for Indigenous peoples. *International Journal of Mental Health and Addiction, 8*, 205–213.

Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report*. Ottawa, ON: Canadian Centre on Substance Abuse.

Foote, R. (1996). *Aboriginal Gambling: A pilot study of casino attendance and the introduction of poker machines into community venues in the Northern Territory*. Darwin: Centre for Social Research, Northern Territory University.

Goodale, J. (1987). Gambling is hard work: Card playing in Tiwi society. *Oceania, 58*(1), 6–21.

Gray, R. (2011). *New Zealanders' participation in gambling: Results from the 2010 health and lifestyles survey*. Wellington: Health Sponsorship Council.

Holland, C. (2011). *Shadow report: On Australian governments' progress towards closing the gap in life expectancy between Indigenous and non-Indigenous Australians*. Canberra: Close the Gap Campaign Steering Committee.

Hunter, E., & Spargo, R. (1988). What's the big deal? Aboriginal gambling in the Kimberley region. *The Medical Journal of Australia, 149*, 668–672.

Lazarus, M., Monzon, E., & Wodnicki, R. (2011). The Mohawks of Kahnawa'ke and the case for an Aboriginal right to gaming under the Constitution Act 1982. In Y. Belanger (Ed.), *First Nations gambling in Canada: Current trends and issues* (pp. 35–51). Winnipeg, MB: University of Manitoba Press.

Martin, D. (1993). *Autonomy and relatedness: An ethnography of Wik people of Aurukun, Western Cape York Peninsula*. Unpublished PhD Thesis. Canberra: Australian National University.

Martin, K. (2008). *Please knock before you enter: Aboriginal regulation of Outsiders and the implications for researchers*. Brisbane: Post Pressed.

McDonald, H., & Wombo, B. (Eds.). (2006). *Indigenous gambling scoping study: A summary*. Darwin: Charles Darwin University.

McMillen, J., & Donnelly, K. (2008). Gambling in Australian Indigenous communities: The state of play. *Australian Journal of Social Issues, 43*(3), 397–426.

Ministry of Health. (2009). *A focus on problem gambling: Results of the 2006/07 New Zealand health survey*. Wellington: Ministry of Health.

National Health & Medical Research Council. (2003). *Values and ethics: Guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research*. Canberra: Author.

National Health & Medical Research Council. (2007). *National statement on ethical conduct in human research*. Canberra: Author.

Neal, P., Delfabbro, P., & O'Neil, M. (2005). *Problem gambling and harm: Towards a national definition*. Melbourne: Gambling Research Australia.

Nielsen, A. C. (2007). *Prevalence of gambling and problem gambling in NSW: A community survey 2006*. Sydney: NSW Office of Liquor, Gaming and Racing.

Oakes, J., Currie, C., & Courtney, D. (2004). *Gambling and problem gambling in First Nations communities*. Toronto, ON: Ontario Problem Gambling Research Centre.

Phillips, G. (2003). *Addictions and healing in Aboriginal country*. Canberra: Aboriginal Studies Press.

Productivity Commission (1999). *Australia's gambling industries: Report no. 10.* Canberra: Ausinfo.

Productivity Commission. (2010). *Gambling*: Re*port no. 50.* Canberra: Author.

Queensland Department of Corrective Services. (2005). *Games people play: Problem gambling in Queensland community corrections*. Brisbane: QLD Government.

Queensland Department of Corrective Services. (2006). *House of cards: Problem gambling, Indigenous communities and corrections*. Brisbane: QLD Government.

Queensland Government. (2008). *Queensland household gambling survey 2006–07*. Brisbane: QLD Treasury.

Rigney, L. (1997). Internationalism of an Aboriginal or Torres Strait Islander anti-colonial cultural critique of research methodologies: A guide to indigenist research methodology and its principles. *Research and development in higher education: advancing international perspectives, 20*, 629–636.

Smith, G., & Wynne, H. (2002). *Measuring gambling and problem gambling in Alberta using the Canadian Problem Gambling Index (CPGI): Final report*. Edmonton, AB: Alberta Gaming Research Institute.

Smith, G., Currie, C., & Battle, J. (2011). Exploring gambling impacts in two Alberta Cree Communities: A participatory action study. In Y. Belanger (Ed.), *First Nations gambling in Canada: Current trends and issues*. Ch. 6, (pp. 118–139). Winnipeg, MB: University of Manitoba Press.

Stevens, M., & Young, M. (2009a). Independent correlates of reported gambling problems amongst Indigenous Australians. *Social Indicators Research, 98*(1), 147–166.

Stevens, M., & Young, M. (2009b). Betting on the evidence: Reported gambling problems among the Indigenous population of the Northern Territory. *Australian and New Zealand Journal of Public Health, 33*(6), 556–565.

Tse, S., Dyall, L., Clarke, D., Abbott, M., Townsend, S., & Kingi, P. (2012). Why people gamble: A qualitative study of four New Zealand ethnic groups. *International Journal of Mental Health and Addiction, 10*(6), 849–861.

Wardman, D., el-Guebaly, N., & Hodgins, D. (2001). Problem and pathological gambling in North American populations: A review of the empirical literature. *Journal of Gambling Studies, 17*(2), 81–100.

Wātene, N., Thompson, K., Barnett, A., Balzer, M., & Turinui, M. (2007). *The impacts of gambling for Māori Communities: A national Māori collaborative approach*. Auckland: Te Rūnanga o Kirikiriroa Trust Inc.

Williams, R., Stevens, R., & Nixon, G. (2011). Gambling and problem gambling in North American Aboriginal people. In Y. Belanger (Ed.), *First Nations gambling in Canada: Current trends and issues* (pp. 166–194). Winnipeg, MB: University of Manitoba Press.

Wynne, H. (2011). Gambling research in Canadian Aboriginal communities: A participatory action approach. In Y. Belanger (Ed.), *First Nations gambling in Canada: current trends and issues* (pp. 93–117). Winnipeg, MB: University of Manitoba Press.

Wynne, H., & McCready, J. (2004). *Addressing problem gambling in Toronto and Windsor/Essex County ethnic communities: Final summary report*. Toronto, ON: COSTI Immigrant Services.

Young, M., Abu-Duhou, I., Barnes, T., Creed, E., Morris, M., Stevens, M., et al. (2006). *An overview of gambling in the Northern Territory.* Darwin: Charles Darwin University.